

47. The process according to Claim 34, wherein the ionic material is selected from the group consisting of boron, phosphorous, arsenic, and combinations thereof.

5 48. The process according to Claim 34, wherein the radiation is selected from the group consisting of visible, ultraviolet, x-ray, and e-beam.

10 49. The process according to Claim 48, wherein the radiation is ultraviolet or x-ray and the polymeric material comprises a photo acid generator.

15 50. The process according to Claim 34, wherein said step of removing the exposed coating portion from the substrate comprises contacting the exposed coating portion with a carbon dioxide containing fluid such that the exposed coating portion is removed from the substrate.

20 51. The process according to Claim 50, wherein said step of contacting the substrate with a first composition comprising carbon dioxide and a component comprises coating the component using a method selected from the group consisting of a spin coating method, a dip coating method, a meniscus coating method, a coating method using self-assembled monolayers, and a spray coating method.

25 52. The process according to Claim 34, wherein the polymeric material is a copolymer of 11'-dihydroperfluorooctyl methacrylate and t-butyl methacrylate.

30 53. The process according to Claim 34, wherein the exposed coating portion has a higher solubility in carbon dioxide relative to the unexposed coating portions, and wherein said step of subjecting the coating to a second composition comprising carbon dioxide comprises removing the

exposed coating portion from the substrate such that the unexposed coating portion remains.

54. The process according to Claim 53, wherein the polymeric material comprises a fluoropolymer.

55. The process according to Claim 54, wherein the fluoropolymer is formed from monomers selected from the group consisting of fluoroacrylate monomers, fluorostyrene monomers, fluoroalkylene oxide monomers, 10 fluorolefin monomers, fluorinated alkyl vinyl ether monomers, cyclic fluorinated monomers, and mixtures thereof.

56. The process according to Claim 55, wherein the monomers are selected from the group consisting of 2-(N-ethylperfluoroctane- sulfonamido) 15 ethyl acrylate, 2-(N-ethylperfluoroctane- sulfonamido) ethyl methacrylate, 2-(N-methylperfluoroctane- sulfonamido) ethyl acrylate, 2-(N-methylperfluoroctane- sulfonamido) ethyl methacrylate, 1,1'-dihydroperfluoroctyl acrylate, 1,1'-dihydroperfluoroctyl methacrylate, 1,1',2,2'-tetrahydroperfluoroalkylacrylate, 1,1',2,2'-tetrahydroperfluoroalkyl- 20 methacrylate,  $\alpha$ -fluorostyrene, 2,4,6-trifluoromethylstyrene, hexafluoropropylene oxide, perfluorocyclohexane oxide, tetrafluoroethylene, vinylidene fluoride, chlorotrifluoroethylene, perfluoro(propyl vinyl ether), perfluoro(methyl vinyl ether), 2,2-bis-trifluoromethyl-4,5-difluoro-1,3-dioxole, and mixtures thereof.

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57. The process according to Claim 53, wherein the polymeric material comprises a silicon-containing polymer.

58. The process according to Claim 57, wherein the silicon-containing polymer comprises at least one segment selected from the group consisting of an alkyl siloxane, a fluoroalkyl siloxane, a chloroalkyl siloxane, and mixtures thereof.

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59. The process according to Claim 53, wherein the metal-containing material comprises at least one metal selected from the group consisting of aluminum, copper, gold, titanium, tantalum, tungsten, molybdenum, silver, and alloys thereof.

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60. The process according to Claim 53, wherein radiation is selected from the group consisting of visible, ultraviolet, X-ray, and e-beam.

61. The process according to Claim 53, wherein radiation is ultraviolet or e-beam and the polymeric material comprises a photo acid generator.

62. The process according to Claim 53, wherein said step of removing the unexposed coating portion from the substrate comprises contacting the unexposed coating portion with a carbon dioxide containing fluid such that the unexposed coating portion is removed from the substrate.

63. The process according to Claim 62, wherein said step of contacting the substrate with a first composition comprising carbon dioxide and a component comprises coating the component using a method selected from the group consisting of a spin coating method, a dip coating method, a meniscus coating method, and a spray coating method.

64. The process according to Claim 53, wherein the carbon dioxide soluble polymeric material is selected from the group consisting of a copolymer of a fluoroacrylate and a component selected from the group